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# Unemployment Insurance and Labour Market Transitions

Stephen Jones

## Purpose

The objective of this evaluation study is to analyze patterns of labour market transition and to determine the manner in which such transitions are influenced by the receipt of UI benefits. More specifically, the research investigates the effects of UI on the length of time spent by an individual in unemployment or non-employment. In addition to determining the effects of UI, the major focus of this analysis, the research also considers the influence of individual personal characteristics and regional factors on the duration of unemployment or non-employment.

## Background

The effects of UI on types of labour market transitions are critical in any evaluation of program effects and effectiveness. Potentially, through its subsidy of job search, UI could generate improved worker-job matches and higher productivity, gains which might be socially beneficial and thereby provide one microeconomic justification for public provision of UI. Thus UI could lengthen the unemployment spell as the unemployed worker looks for a better job, and rejects job offers, if any, which do not meet his expectations. This means that the transition probability of an unemployed worker moving into employment can be expected to be lower (and the duration of unemployment spell longer) if the worker has access to UI. Relatedly, the view has been proposed that UI may encourage or facilitate patterns of employment and unemployment designed to generate repeat use of UI, so that temporary or "marginal" employment might be arranged so as to meet entrance requirements for UI. Consequently, research on the outcomes of UI-supported job search bears on a central question of policy concern.

The specific goals of the present study are to analyze the effects of UI receipt on duration of unemployment or joblessness, and to examine these effects when allowance is made for alternative

transitions (e.g., employment or labour force withdrawal) following an unemployment spell. The study also examines whether there is any variation in the effects of UI when allowance is made for alternative types of new employment (full time/part-time, short/ long duration, industry, and occupation of the new job) following a spell of unemployment. A related question that the research touches upon, subject to some data limitations, is the issue of patterns of repeat UI usage in the context of multiple unemployment spells.

## Data and Methodology

Labour market states are usually classified, as in the Canadian Labour Force Survey (LFS), into three mutually exclusive categories: Employment (E), Unemployment (U), and Non-Labour Force (NLF). When a worker is unemployed, this unemployment spell could end in one of two ways: (i) by finding employment (a new job or returning to the old one) or (ii) by withdrawing from the labour force for various reasons, potentially including exhaustion of UI. The basic goal of this research is to understand the determinants of these transitions and to study the alternative ways in which unemployment spells might end as "competing risks."

A project of this type requires longitudinal data on labour market experiences, such as that provided by the two waves of the Labour Market Activity Survey (LMAS). The nature of the LMAS questionnaire design poses some problems in identifying the "pure unemployment" spells, however, as earlier work by Jones (jointly with Craig Riddell of UBC) has revealed. Potentially, an important number of unemployment spells may be missed. For this reason, not much insight can be gained from an uncritical analysis of the transitions from unemployment spells produced from the LMAS.

Two alternative approaches were considered in the current research and both are reported here. First,





given the problem with the LMAS questionnaire design, one approach is to adopt a two-state model of the labour market, coding all weeks as either employed or non-employed. The portmanteau non-employment state then encompasses unemployed, the LMAS "marginal" state (of wanting work but not searching for it), and nonparticipants.

There is a major limitation in this approach if the object of interest is really unemployment or periods of UI receipt, rather than non-employment. Many of the non-employed are full year non-participants, so that the longest durations correspond largely to persons who have little genuine link to the labour market and for whom a grouping with the unemployed is behaviourally quite poor, at least if unemployment is defined on LFS terms. To some degree, this problem can be rectified by the omission of all spells that were already in progress (left-censored non-employment spells) at the time the LMAS two or three year window started. By focusing on "fresh spells" that start within the LMAS window, full year non-participants are excluded from the sample. A further problem, however, arises as a result of other groups that move into and out of non-employment within a year (or within the LMAS two or three year span), who generate fresh spells on non-employment that nonetheless fail to correspond to unemployment as usually defined. This problem is resolved by dropping persons who reported leaving employment (and hence starting the fresh non-employment spell) because of (i) retirement, (ii) ill health, (iii) other personal reasons, and (iv) education.

Second, for each individual in the LMAS, which was administered as a supplement to the Labour Force Survey (LFS), the contemporaneously reported LFS records on labour force state for each of the months that the person is in the LFS sample were obtained from Statistics Canada. Such matched data are available for all persons in both longitudinal files (1986-87 and 1988-90) of the LMAS. Records of individuals from the two data sources are matched by identifying the individuals by their SIN numbers. Merging of these two data sets enables tracing of each individual's transition from one labour market state to another over the data horizon and also provides demographic characteristics of each individual as well as the UI reciprocity status. These LFS data are monthly, of course, not weekly (as are other durations in the LMAS proper), and they are for a maximum of six months, not for the two and three year retrospective periods covered by the two respective waves of the LMAS. Also, the LFS information categorizes agents into three states (employed, unemployed and out of the labour force), rather than the four states

that were attempted in the LMAS.

It should also be noted that LFS-unemployment does not line up exactly with reciprocity of unemployment insurance, a point that should be kept in mind in the context of the present study. In addition, the analysis will use the LMAS data on UI receipt: for 1986 and 1987, this covers receipt during a calendar year; for 1988-90, data are available both for receipt during each calendar year (i.e., 1988, 1989 and 1990) and for receipt during a particular non-employment spell. Care is taken in the analysis to examine spell durations corresponding to the nature of these data on UI receipt. It should be noted that exact timing information on UI receipt is not available in these data, however, and that the geographic information available at the provincial level in the LMAS does not allow an accurate imputation of total weeks of eligibility for each individual. Consequently, questions that many researchers have thought important pertaining to the timing of UI exhaustion cannot be precisely addressed using the LMAS. Nonetheless, the strengths of these data should be kept in mind, including the sample size, its national coverage, its longitudinal nature and its representativeness of all of the provinces. The methodology that is used to analyse the transition probabilities is known as hazard function estimation, that is, estimation of the determinants of the probability (or "hazard") of moving from one labour market status into another in a specified time period. In the present context, a hazard function for unemployment spells provides quantitative estimates of conditional probability that an unemployment spell (or non-employment spell) will end in a particular month, given that it had not ended prior to start of that month. In addition, an alternative model framework, namely, Ordinary Least Squares (OLS) regression, was also considered. In the regression framework, the duration of an unemployment spell could be conceived as being determined by the receipt of UI and other relevant factors.

The hazard estimation method is technically superior for several reasons. One of the main reasons is that the OLS technique gives biased estimates since all unemployment spells will not end when the observation period is cut off: some data will therefore be censored. The hazard estimation, on the other hand, permits appropriate allowance for incomplete spells that are still in progress when the observation window ends (called right-censored spells). In addition, the use of a hazard framework permits the probability of leaving unemployment to vary as the spell progresses, the case of duration dependence.



This said, the results from the two methods are interrelated. A longer unemployment spell means that the transition probability of moving from unemployment to the other labour market states would tend to be lower, and vice versa. These transition probabilities would depend upon a variety of factors in addition to the receipt of UI. Receipt of UI is likely to lengthen the unemployment duration (as discussed above) and thus reduces the probability of moving from U to E. But it would also depend upon the personal and household characteristics such as age, gender, marital status, level of education, number of children in the family etc. *A priori*, the duration of U might be shorter for males than for females, other things being the same, as males are usually the prime earners and are usually under greater pressure to find jobs. In terms of the hazard function, it means that males can be expected to have higher probability of moving to a state of employment than females. Younger workers without family responsibilities might be less willing to accept jobs that do not meet their expectations. They are thus likely to have lower transition probability of moving to E. It could also depend upon the region of residence of the individual agent which could serve as a proxy for Variable Entrance Requirements (VAR) and probably also a crude proxy for labour market conditions. Accordingly, in the Atlantic Provinces, other things being the same, the transition probability of moving from U to E can be expected to be lower than in other regions.

## Key Findings

The study covers the period 1986-90 and thus encompasses all the years for which LMAS data are available. Separate analysis is provided for all possible types of spells that may span multiple LMAS years, specifically, 1986, 1986-87, 1987, 1988, 1988-89, 1988-90, 1989-90 and 1990. Here, a single year refers to a spell starting and ending within that year while two years denote a spell starting in the first year and ending in the second. For example, a 1986-87 spell will have started in 1986 and will have ended in 1987: relevant data from the LMAS will then include the indicators of UI receipt for both 1986 and 1987, and analogously for other spell types.

### Non-employment Spells

The mean duration of completed non-employment spells varies from 9.5 weeks in 1986 to 15.4 weeks in 1987, 8.7 weeks in 1989, and 16.6 weeks in 1990.

The mean duration of non-employment spells is much longer as might be expected in two-year seams: 1986-87 (46.4 weeks), 1988-89 (32.7 weeks), 1989-90 (39.4 weeks).

When spells are considered in the context of the reported UI receipt, no uniform pattern emerges. For instance, for the first spells, 48 percent of the 1986 and 48 percent of 1986-87 spells are by individuals who reported UI receipt in 1986. This figure drops to 14 percent for the 1987 spells. The analogous figures for 1987 UI receipt are slightly lower for the 1986 and 1986-87 spells, 38 percent and 44 percent respectively, but the figure for 1987 spells is much higher at 41 percent. In view of concerns about patterns of repeat use, the finding that only 14 percent of 1987 first spells received UI in 1986 is of some interest in itself. However, the fairly low rates of UI receipt at any time during the year in which these non-employment spells occurred is perhaps discouraging, if the goal is to analyze patterns of UI receipt, since it must imply that a relatively large number of these spells are not really unemployment as usually conceived.

The hazard function estimates also fail to yield consistent results for different spell types considered. For the 1986-87 spells, the transition probability of moving from non E to E increases with the receipt of UI in 1987 (statistically not significant for the receipt of UI in 1986). For the 1988-89 spells, the transition probability of moving from NE to E decreases with the receipt of UI in 1988 but increases with the receipt of UI in 1989. For the 1989-90 NE spells, the receipt of UI in 1989 reduces the hazard rate, but the receipt of UI in 1990 increases the hazard rate. It is thus not possible to arrive at any generalization with regard to the effects of UI on the transition probabilities.

The associated impacts of personal and other characteristics of the individuals also vary depending upon type of spells considered. However, more frequently, the hazard rates are higher for males than females as expected, higher for married persons as expected, higher with a greater level of education, and are lower in Quebec, Praries, and BC as compared with Ontario.

### Unemployment Spells

Transition probabilities of moving from a U spell to E and NLF are estimated for all the types of spells detailed above.

The receipt of UI did not significantly influence the transition probability of moving from U to E or NLF, except for 1986-87 spells where the receipt of UI in 1986 reduced the transition probability to E

when the influences of all other factors are removed. This means that except for 1986-87 spells, the receipt of UI did not lengthen the duration of unemployment.

With some exceptions, the estimated transition probability coefficients were not statistically significant for gender, marital status, age, and years of education of the unemployed.

The transition probabilities of moving into E were consistently and significantly lower (and thus unemployment duration longer) in the Atlantic region when compared with Ontario for all the spell types. The reason for the lower transition probability for the Atlantic region could be the VARs. Similar results were found for Quebec. The same appeared to be true for B.C. for 1988 and 1988-89 spells.

The divisions of transition to full-time and part-time jobs, given that there was a transition to employment, did not indicate any significant influence of the receipt of UI.

## Conclusion

This research performed an analysis of the LMAS data, together with the matched linked record information from the LFS, to analyze the influence of UI receipt on labour market transition probabilities. While it produced a number of individually interesting results, it failed to yield a set of consistent and readily interpretable results.

Some of this may be due to data deficiencies, since the UI information available in the LMAS is not of high quality (especially in the 1986-87 file) and since the unemployment information itself in the LMAS also has seriously analytical problems. More generally, the failure to find a strong and consistent pattern of results may reflect the absence of such a strong and consistent pattern in the economy. Disentangling these two effects will require superior data on UI receipt and unemployment spells, ideally in an experimental or quasi-experimental setting where there is some plausibly exogenous variation in UI program parameters.

## Biographical Notes

**Stephen Jones** is currently an Associate Professor of Economics at McMaster University. His primary fields of research and teaching interest include: labour economics; economic theory; anthropological, psychological and sociological approaches to economics; and econometrics. His research results in labour economics have appeared in many scholarly and professional journals.

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*"Unemployment Insurance and Labour Market Transitions"* by Stephen Jones, is in preparation for publication by Human Resources Development Canada as an Insurance Program evaluation report, 1994.

Copies of the full technical report (when finalised) and further copies of this summary are available from:

Evaluation Branch  
Strategic Policy  
Human Resources Development Canada  
Place de Ville, Tower B, 22nd Floor  
112 Kent Street  
Ottawa, Ontario K1A 0J9

Telephone: (613) 954-7709  
Fax: (613) 954-0134

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HRDC EVALUATION BRIEF NOVEMBER 1994